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A new Mexican species of *Belonuchus* Nordmann (Coleoptera, Staphylinidae)

WILLIAM DAVID RODRÍGUEZ[1] & JOSÉ LUIS NAVARRETE-HEREDIA[2]
Entomología, Centro de Estudios en Zoología, CUCBA, Universidad de Guadalajara, Apartado Postal 134, 45100 Zapopan, Jalisco, México. E-mail:[1]vencedor.rodriguez@gmail.com; [2]glenusmx@gmail.com

Abstract

A new species of *Belonuchus* Nordmann, 1837 is described based on 118 specimens from Cerro de Garcia, Jalisco, Mexico. *Belonuchus cifuentesi* Rodríguez & Navarrete-Heredia **sp. nov.** was primarily collected associated with *Agave inaequidens*, and is similar to *B. arizonicus* Casey, 1915 but differs mainly in the structure of the aedeagus and color pattern.

Key words: Staphylinini, Philonthina, Jalisco, taxonomy

Resumen

Se describe una especie nueva de *Belonuchus* Nordmann, 1837 con base en 118 especímenes procedentes de Cerro de García, Jalisco, México. *Belonuchus cifuentesi* Rodríguez & Navarrete-Heredia **sp. nov.** se encuentra asociado principalmente a *Agave inaequidens* y es parecido a *B. arizonicus* Casey, 1915 pero difiere principalmente en la estructura del edeago y en el patrón de coloración.

Key words: Staphylinini, Philonthina, Jalisco, taxonomy, Mexico

Introduction

Philonthina Kirby, 1837 are the largest subtribe of the Staphylinini (Staphylinidae) (Chani-Posse 2014). This tribe contains one of the megadiverse genera within the Staphylinidae: *Philonthus* Curtis, 1829 with more than 1250 species around the world (Herman 2001). The genus *Belonuchus* Nordmann, 1837 belongs to that subtribe and contains more than 200 species worldwide, but higher specific diversity is recognized in the neotropics (Herman 2001; Chani-Posse 2014).

There is no modern revision for *Belonuchus* worldwide; however there is one to the North American species written by Smetana (1995), and one other for Chinese species (Li & Zhou 2010). Few species are represented in these works but Smetana's paper provides useful tools for taxonomic research, including a detailed description of the genus and, precise information to differentiate species of *Belonuchus* from the closely related genus *Philonthus*, in which many species were originally described.

In his revision, Smetana (1995) recognized four species groups named as: rufipennis, aphaobius, ephippiatus and arizonicus. The last group is recognized by the combination of the following character states: "head with temporal carina; dorsal rows on pronotum each with no more than four punctures, elevated area between two basal lines of visible abdominal tergites 2 and 3 with rudimentary submeshed microsculpture and aedeagus with paramere fully developed" (Smetana 1995). This group was proposed for a single species: *Belonuchus arizonicus* Casey, 1915 whose adults are primarily associated with succulent plants (such as *Agave* and *Dasylirion*) at decomposing stage, preference that is also shared with other *Belonuchus* species such as: *B. moquinus* Casey, 1884, *B. rufipennis* (Fabricius, 1801), *B. ephippiatus* (Say, 1830) and *B. erythropterus* Solsky, 1868 (Smetana 1995; Navarrete-Heredia *et al*. 2002).

Mexican *Belonuchus* are represented by 26 described species but several species remain undescribed. Adults

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and larvae are found in a great variety of decomposing microhabitats including carrion, dung, mushrooms, fruits and also succulent plants (Navarrete-Heredia *et al*. 2002).

As part of the project to evaluate the altitudinal distribution of carrion staphylinids in Cerro de Garcia, Jalisco, specimens of an undescribed *Belonuchus* species were collected, so the goal of this paper is to describe a new species of the arizonicus group.

For description of the species we follows Smetana (1995). Measurements are in millimeters. HW—head width; HL—head length (from anterior margin of frontoclypeus to posterior margin of head); PL—pronotal length (at the midline); PW—pronotal width.

Depositories

CZUG	Colección Entomológica, Centro de Estudios en Zoología, CUCBA, Universidad de Guadalajara, Zapopan, Jalisco, México.
CNIN	Colección Nacional de Insectos, Instituto de Biología, Universidad Nacional Autónoma de México.
MUD	Colección Entomología Universidad Distrital Francisco José de Caldas, Bogotá, Colombia.

***Belonuchus cifuentesi* sp. nov.**
(Fig. 1)

Coloration. Head and antennae black, pronotum black with anterior corners and pronotal hypomera reddish-brown; elytrae, scutellum and abdominal tergites III–IV and sometimes basal portion of V, reddish-brown; elytra paler than abdominal segments; most of tergite V or entire tergite V to VIII piceous to piceous-black. Head and pronotum iridescent; mandibles and palpi brownish; legs reddish brown.

Head. Head of obtusely quadrangular shape, slightly longer than wide (HW/HL: 1.2), with obtuse hind angles; eyes small, more than two times smaller than tempora length seen from above, temporal carina bearing long and small setae (Fig. 2); frons with wide fovea and with a longitudinal impression; dorsal surface with scattered umbilicate punctures, except large median area impunctate, surface with fine and dense microsculpture of oblique and transverse striae and scattered microscopic punctures (hard to see at 40´). Neck with anterior sulcusdeep and impressed. Gular sutures entirely fused except for very a short distance anteriorly. Antennae short, first three antennomeres bearing only sparse strong setae, outer antennomeres (4–11) with microtrichia and long setae, third antennomere slightly longer than second, each one of the outer antennomeres smaller than each one of the first three.

Thorax. Pronotum scarcely longer than wide (PL/PW: 1.02–1.1), narrowed posteriad, lateral margins usually inconspicuously concave in posterior half; dorsal rows each one with four, rarely with three or two punctures; lateral portions each with three or four punctures; surface with microsculpture similar to that on head. Elytra longer than the elytral suture (ratio 1.28), at sides longer than pronotum at midline (ratio 1.26–1.28), at base slightly wider than pronotum at widest point, somewhat widened posteriad; punctation fine, moderately dense, most interspace between punctures about twice as large as diameters of punctures; pubescence brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum densely punctate. Legs slender, profemur with two lines of spines of irregular size, metafemur with two lines of small and strong spines; tibiae with several spines; tarsi filiform, first and fifth tarsomeres longer than each one of the second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctation of tergites about as dense and coarse as that on elytra, gradually becoming sparser and finer toward apical margin of each tergite; pubescence brownish, surface on base of each tergite with dense and coarse, almost granulose microsculpture, on the rest with fine and dense microsculpture of transverse striae. Genital segment with tergite X bearing two subapical semierect setae (Fig. 4).

Male: Sternite VIII (Fig. 3) with very shallow middle apical emargination. Genital sternite with a depth conspicuous emargination (Fig. 5). Aedoeagus small, narrow and elongate (Figs. 6–7); median lobe subparallel-sided to slightly, evenly narrowed toward obtuse apex; paramere with wide, triangular, narrowed basal portion and with long, narrow, rod-like apical portion.

Female: Genital segment with tergite small and narrowed posteriad (Fig. 8).

Length: 11–13.4 mm.

Specimens examined. Holotype ♂ MÉXICO: Jalisco, Teocuitatlán de Corona, Cerro de García, Colecta manual en *Agave inaequidens* 3-VIII al 3 IX de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez. Specimen deposited at CZUG. **Paratypes (117), all of them collected in México: Jalisco,** Teocuitatlán de Corona, Cerro de García, Colecta manual en *Agave inaequidens,* except for: 7-VI al 2-VII de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (8♀: CZUG); 03 IX-05 X de 2014, 20° 09′ N 103°20′ W 2423 msnm. Col. William D. Rodríguez (3♀: CZUG); 2-VII al 3-VIII de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (7♂1♀: CZUG); 15-III-2014, 20°09'42.5"N 103° 19' 55.9"W 2289 msnm Col. Rodríguez, W.D y Hernández, B. (2♂6♀: CZUG); 3-VIII al 3 IX de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (4♂: CZUG); 4 - V al 7 - VI de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (3♂: CZUG); 4 - V al 7 - VI de 2014, 20° 09′ N 103°20′ W 2423 msnm. Col. William D. Rodríguez (1♂: CZUG); 10-IV al 4 - V de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (2♂: CZUG); 15-III-2014, 20°09' 48.5"N 103°20' 07.2"W 2434 msnm Col. William D. Rodríguez (1♂: CZUG); 3-VIII al 3 IX de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (6♂2♀: MUD); 2-VII al 3-VIII de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez; 2-VII al 3-VIII de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (8♀: MUD); 10-IV al 4 - V de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (1♀: MUD); 15-III-2014, 20°09'42.5"N 103° 19' 55.9"W 2289 msnm Col. Rodríguez, W.D y Hernández, B. (6♂2♀: MUD); 15-III-2014, 20°09' 48.5"N 103°20' 07.2"W 2434 msnm Col. William D. Rodríguez (1♀: MUD); 03 IX-05 X de 2014, 20° 09′ N 103°20′ W 2423 msnm. Col. William D. Rodríguez (7♂: MUD); 4 - V al 7 - VI de 2014, 20° 09′ N 103°20′ W 2423 msnm. Col. William D. Rodríguez (2♀: MUD); 7-VI al 2-VII de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (1♀: MUD); 3-VIII al 3 IX de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (1♂12♀: CNIN); 7-VI al 2-VII de 2014, 20° 09′ N 103°20′ W 2423 msnm. Col. William D. Rodríguez (1♀: CNIN); 4 - V al 7 - VI de 2014, 20° 09′ N 103°20′ W 2423 msnm. Col. William D. Rodríguez (3♂2♀: CNIN); 10-IV al 4 - V de 2014, 20° 09′ N 103°20′ W 2423 msnm. Col. William D. Rodríguez (1♂1♀: CNIN); 03 IX-05 X de 2014, 20° 09′ N 103°20′ W 2423 msnm. Col. William D. Rodríguez (2♂1♀: CNIN); 15-III-2014, 20°09' 48.5"N 103°20' 07.2"W 2434 msnm Col. William D. Rodríguez (1♂: CNIN); 03 IX-05 X de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (2♂: CNIN); 3-VIII al 3 IX de 2014, 20° 09′ N 103°20′ W 2423 msnm. Col. William D. Rodríguez (1♂: CNIN); 15-III-2014, 20°09'42.5"N 103°19' 55.9"W 2289 msnm Col. Rodríguez, W.D y Hernández, B. (2♂: CNIN); 2-VII al 3-VIII de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (3♂: CNIN); 10-IV al 4 - V de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (1♂: CNIN); 2-VII al 3-VIII de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (1♂: CNIN); MÉXICO: JAL, Teocuitatlán de Corona, Cerro de García, Colecta manual en *Agave inaequidens* 7-VI al 2-VII de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (7♂: CNIN); MÉXICO: JAL, Teocuitatlán de Corona, Cerro de García, Colecta manual en *Agave inaequidens* 4 - V al 7 - VI de 2014, 20°09′ N 103°19′ W, 2314 msnm. Col. William D. Rodríguez (1♂: CNIN). One additional female dissected, not a type with the label data as: México: Jalisco, 15-III-2014, 20°09′42.5′′N 103°19′55.9′′W 2289 msnm Col. Rodríguez, W.D. y Hernández, B. (1♀**:** CZUG)

Etymology. We named this species to honor Dr. Juan Luis Cifuentes Lemus in recognition for his contribution to the Mexican biology, both as a scientist and as a Professor. He also is the promoter for the construction of new biology programs in many Mexican universities.

Distribution. Adults of *Belonuchus cifuentesi* are known only from type locality, Teocuitatlán de Corona, Cerro de García.

Type locality. Teocuitatlán de Corona, Cerro de García. It is located at an altitude of 1500–2780 masl in the Transmexican Volcanic Belt (Jalisco, México).

Biology. Adults were collected in decomposing agave (*Agave inaequidens*) (Fig. 10), at 2289–2434 masl. As for other *Belonuchus* species we suspected that preference for material at decomposing stage is due to their predatory habits, so their occurrence in the host plant is searching for preys, may be fly maggots that were detected when adults were collected. *Agave inaequidens* is distributed in localities of the Transmexican Volcanic Belt in central Mexico primarily in oak and pine forests (Gentry, 1982), so we suspected that *B. cifuentesi* should be distributed at least in the same areas as their host or with other *Agave* species at similar altitude.

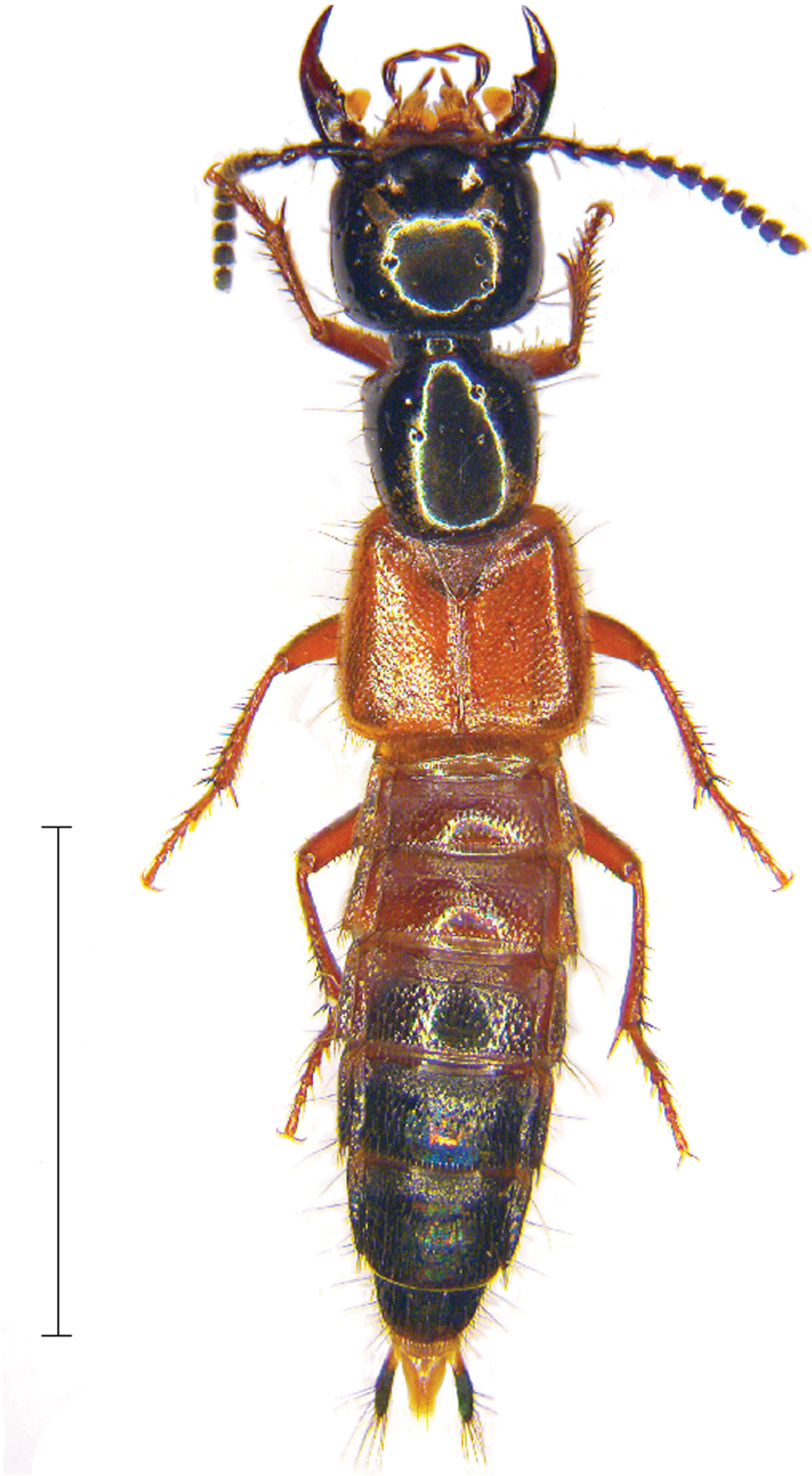

FIGURE 1. Dorsal view of *Belonuchus cifuentesi* **sp. nov.** Habitus (scale bar=5 mm).

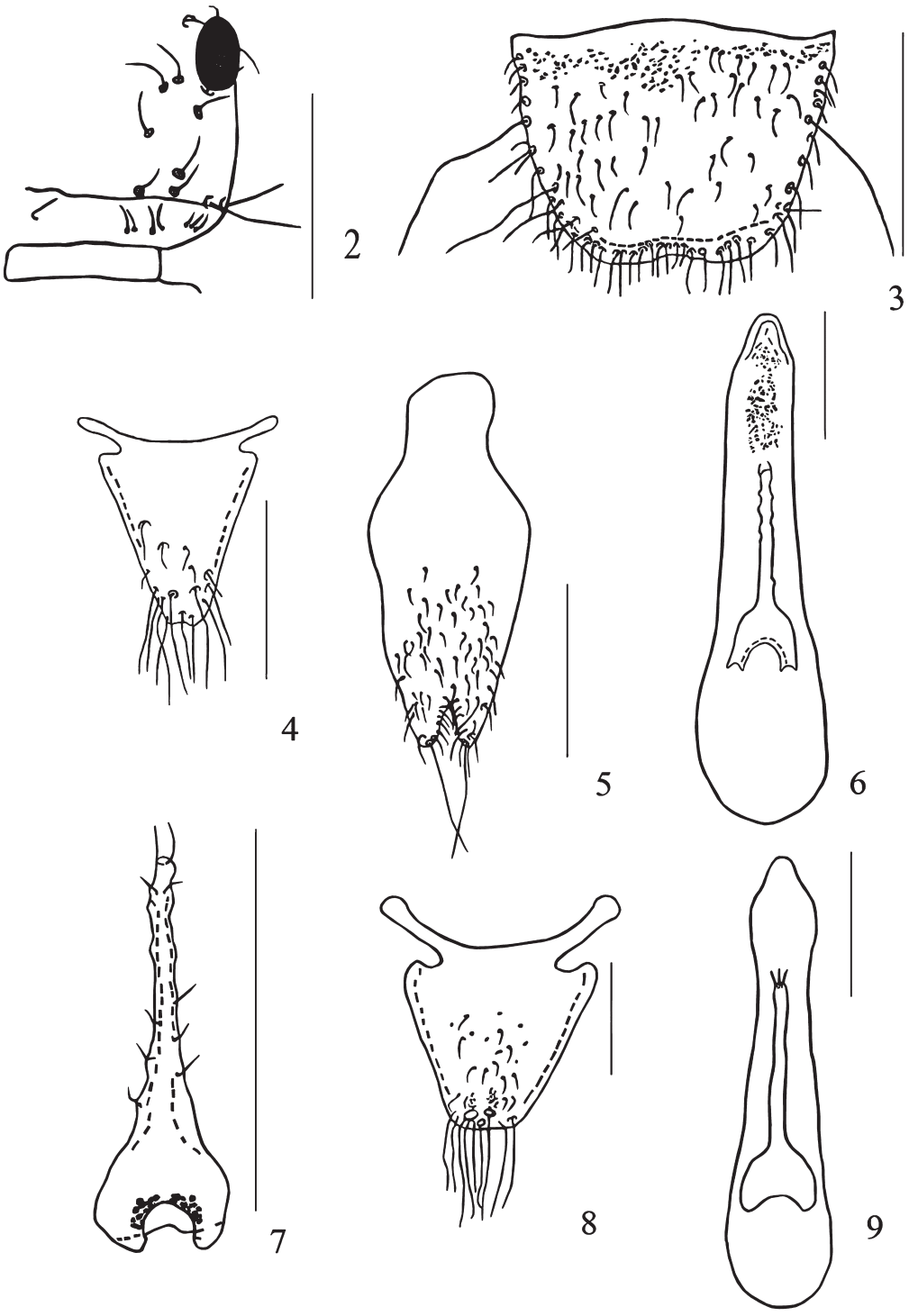

FIGURE 2. Lateral view of head showing temporal carina (scale bar=1.25 mm).
FIGURE 3. Apical portion of VIII male sternite (scale bar =0.82 mm).
FIGURE 4. Male tergite X (scale bar=0.55 mm).
FIGURE 5. Male stenite IX (scale bar=0.8 mm).
FIGURE 6. Aedeagus ventral view (scale bar=0.8 mm).
FIGURE 7. Parameres (scale bar=0.48 mm).
FIGURE 8. Female tergite X (scale bar=0.55 mm).
FIGURE 9. Aedeagus ventral view *Belonuchus arizonicus* (scale bar=0.3 mm). (According to Smetana 1995).

FIGURE 10. Decomposing agave (*Agave inaequidens*).

Discussion

Belonuchus cifuentesi is a species found at altitudes above 2000 m and associated with *Agavaceae. Belonuchus cifuentesi* sp. nov. is similar to *Belonuchus arizonicus* Casey, 1915. However, *B. cifuentesi* is recognized by the black abdominal segments from tergite V, pleurites VI and VIII in more than half of specimens are dark black, antennomeres pubescent, tempora less than 2 times as long as the length of the eyes, the firts 4 antennomeres are longer than width, anterior corners and pronotal hypomera reddish-brown, frons with wide fovea and with a longitudinal impression, dorsal surface with scattered umbilicate punctures, first three antennomeres bearing only sparse strong setae, outer antennomeres (4–11) with microtrichia and long setae, profemur with two lines of spines of irregular size, metafemur with two lines of small and strong spines; tibiae with several spines; tarsi filiform, first and fifth tarsomeres longer than each one of the second to fourth, aedeagus small, narrow and elongate, median lobe subparallel-sided to slightly, evenly narrowed toward obtuse apex and smaller than *B. arizonicus* (Fig. 9).

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